



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,872	03/31/2004	Masashi Shiraishi	251022US2	4581
22850	7590	12/06/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			SARKAR, ASOK K	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	
			2891	

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/812,872	<b>Applicant(s)</b> SHIRAISHI, MASASHI	
	<b>Examiner</b> Asok K. Sarkar	<b>Art Unit</b> 2891	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4 – 6, 8 and 12 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Bajorek, US 5,465,186.

Regarding claims 1 and 8, Bajorek teaches a manufacturing method of a head gimbal assembly with a thin – film magnetic head with a magnetoresistive effect element comprising the steps of:

- forming a plurality of magnetoresistive effect elements on a wafer with respect to Figs. 2a and 2b;
- forming a plurality of pairs of connection pads 53a and 57a, each pair of connection pads being electrically connected across each magnetoresistive effect element with reference to Fig. 5c;
- forming a plurality of thin – film short – circuit patterns 63 on a surface of said wafer, each short – circuit electrically short – circuiting between each pair of connection pads with reference to Fig. 5c; and
- thereafter breaking each short-circuit pattern by laser radiation during a predetermined manufacturing process of the magnetic head in between column 6, line 23 and column 7, line 25.

Regarding claims 4 – 6 and 12 – 14, Bajorek teaches each short – circuit pattern formed by sputter deposition and made of Au (column 7, lines 9 – 18) and has a strip shape linearly connecting each pair of connection pads with reference to Fig. 5c.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bajorek, US 5,465,186.

Bajorek fails to teach the thickness of the short – circuit pattern.

However, it would have been obvious to one with ordinary skill in the art at the time of the invention to judiciously adjust and control the thickness of the short – circuit pattern for removal/breaking by the laser ablation process through routine experimentation and optimization to achieve optimum benefits (see MPEP 2144.05) and it would not yield any unexpected results.

Note that the specification contains no disclosure of either the critical nature of the claimed processes or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen methods or upon another variable recited in a claim, the Applicant must show that the chosen methods or variables are critical (*Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir., 1990)). See also *In re Aller, Lacey and Hall* (10 USPQ 233 – 237).

6. Claims 2, 3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bajorek, US 5,465,186 in view of Hsiao, US 2003/0151858.

Regarding claims 2 and 9, Bajorek teaches magnetic head sliders, but fails to teach the step of cutting the wafer into a plurality of bar members so that the plurality of magnetoresistive effect elements are aligned on each bar member, and wherein the predetermined manufacturing process is a process performed with respect to the bar member.

Hsiao teaches the step of cutting the wafer formed with magnetoresistive effect elements into a plurality of bar members so that the plurality of magnetoresistive effect elements are aligned on each bar member with respect to Figs 10 and 11 in paragraphs 40 and 41 for the benefit of forming a magnetic head assembly with ESD shunt seed layers in paragraph 2.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Bajorek and introduce a step of cutting the wafer into a plurality of bar members so that the plurality of magnetoresistive effect elements are aligned on each bar member and wherein the predetermined manufacturing process is

Art Unit: 2891

a process performed with respect to the bar member for the benefit of forming a magnetic head assembly with ESD shunt seed layers as taught by Hsiao in paragraph 2.

Regarding claims 3 and 10, Bajorek teaches magnetic head sliders, but fails to teach the step of cutting the wafer into a plurality of bar members so that the plurality of magnetoresistive effect elements are aligned on each bar member, and the step of cutting and separating each bar member into a plurality of individual magnetic head sliders, and wherein the predetermined manufacturing process is a process performed with respect to the individual magnetic head slider.

Hsiao teaches the step of cutting the wafer formed with magnetoresistive effect elements into a plurality of bar members so that the plurality of magnetoresistive effect elements are aligned on each bar member and the step of cutting and separating each bar member into a plurality of individual magnetic head sliders with respect to Figs 10 – 12 in paragraphs 40 – 43 for the benefit of forming a magnetic head assembly with ESD shunt seed layers in paragraph 2.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Bajorek and introduce a step of cutting the wafer into a plurality of bar members so that the plurality of magnetoresistive effect elements are aligned on each bar member, and the step of cutting and separating each bar member into a plurality of individual magnetic head sliders, and wherein the predetermined manufacturing process is a process performed with respect to the individual magnetic

Art Unit: 2891

head slider for the benefit of forming a magnetic head assembly with ESD shunt seed layers as taught by Hsiao in paragraph 2.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bajorek, US 5,465,186 in view of Hsiao, US 2003/0151858 as applied to claim 8 above, and further in view of Fujiwara, US 2002/0034050.

Regarding this claim Bajorek in view of Hsiao teaches the steps of cutting the wafer to bar and then to individual head sliders as the predetermined manufacturing process, but fails to teach the step of assembling the individual slider to a head gimbal assembly with a support member.

Fujiwara teaches the step in forming head gimbal assembly with a thin – film magnetic head with a magnetoresistive effect element in which he teaches the step of assembling the individual slider to a head gimbal assembly with a support member in paragraph 24 for the benefit of manufacturing a reliable head suspension assembly in paragraph 10.

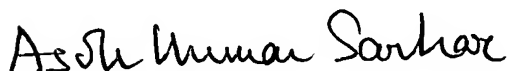
Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Bajorek in view of Hsiao and introduce the step of assembling the individual slider to a head gimbal assembly with a support for the benefit of manufacturing a reliable head suspension assembly as taught by Fujiwara in paragraph 10.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William B. Baumeister can be reached on 571 272 1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Asok K. Sarkar  
December 5, 2005

Primary Examiner